

## PATENT ABSTRACTS OF JAPAN

(11)Publication number : **10-204317**

(43)Date of publication of application : **04.08.1998**

---

(51)Int. Cl.

**C09C 1/04**

**A61K 7/02**

---

(21)Application number : **09-028558**

(71)Applicant : **KANEBO LTD**

(22)Date of filing : **27.01.1997**

(72)Inventor : **KURODA AKIHIRO**

---

**(54) COMPOSITE POWDER AND COSMETIC**

(57)Abstract:

PROBLEM TO BE SOLVED: To obtain a composite powder having ultraviolet-intercepting effect, suppressed activity, excellent stability and safety and excellent touch in use, by compositing a heat-treated suppressed-activity zinc oxide powder with an inorganic powder and to obtain a cosmetic.

SOLUTION: A zinc oxide powder having a mean primary particle diameter of 5nm-100 $\mu$ m, especially 5-100nm itself has strong activity, and therefore its activity is most greatly affected by treatment of lowering activity. Besides, it can be easily composited with an inorganic powder, so that it is particularly desirable. It is spherical, platy, irregular or the like in shape, and its particle size distribution is not particularly limited. This powder is heat-treated by directly heating it to 600-1,700°C for 0.1-48hr or by irradiating it with electromagnetic waves to obtain a suppressed-activity zinc oxide powder. It is also possible that the obtained powder is further subjected to surface treatment such as silicone treatment or silane treatment. The inorganic powder used is e.g. apatite or hydroxyapatite having a particle diameter of 0.05-100 $\mu$ m and being spherical, platy or the like in shape. This powder is composite with the above obtained suppressed-activity zinc oxide powder in a weight ratio of 1:99 to 99:1.

---

**LEGAL STATUS**

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

Copyright (C); 1998,2000 Japan Patent Office

\* NOTICES \*

**Japan Patent Office is not responsible for any damages caused by the use of this translation.**

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. \*\*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

---

CLAIMS

---

[Claim(s)]

[Claim 1] The composite-powder object characterized by composite-izing the activity suppression type zinc-oxide fine particles which heat-treated zinc-oxide powder at the temperature of 600-1700 degrees C with inorganic powder, and being obtained.

[Claim 2] The charge of makeup characterized by containing a composite-powder object according to claim 1.

---

[Translation done.]

## \* NOTICES \*

Japan Patent Office is not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. \*\*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

---

DETAILED DESCRIPTION

---

[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] this invention relates to the charge of makeup containing the composite-powder object which composite-ized the zinc-oxide fine particles which suppressed activity by heating zinc-oxide powder with inorganic powder, and these fine particles. Furthermore, it is heating zinc-oxide powder at an elevated temperature in detail, and is containing the composite-powder object acquired by composite-izing the zinc-oxide fine particles by which various activity's, such as the photocatalyst activity's of a zinc oxide and solid-acid activity's, was suppressed with inorganic powder, and the stability of a product, safety, the ultraviolet-rays defense effect, and the charge of makeup excellent in the feel at the time of use are offered.

[0002]

[Description of the Prior Art] Zinc-oxide powder is excellent in the ultraviolet-rays defense effect, and has sterilizing properties, there is the feature which was [ be / little whiteness / optically ] excellent, and even when it composite-izes with other fine particles, the feature which was excellent in the zinc-oxide origin can be acquired. Moreover, zinc-oxide powder is a material desirable for it being comparatively soft and acquiring a composite-powder object in mechanochemical compared with titanium oxide etc. For example, the technology which composite-izes the zinc-oxide powder siliconized by JP,8-245343,A etc. for the purpose of improvement in sebum control nature and a feeling of use by fine particles is proposed.

[0003]

[Problem(s) to be Solved by the Invention] However, although zinc-oxide powder was excellent in functionality, and various kinds of activity was strong therefore, the technology which may affect the stability of a product and suppresses this activity was needed. When the activity of zinc-oxide powder was strong, pass through an oily medicine, perfume, etc. in the charge of makeup, and it was made to deteriorate in the time, and it needed to become the cause of a smell or discoloration, and the skin may be made to generate troubles, such as a rash, and such activity needed to be stopped as low as possible. Then, even if it performed the method of covering zinc-oxide powder with silicone etc. as mentioned above, it is difficult to suppress the activity of a zinc oxide completely, and combination composition of the charge of makeup etc. had a limit. Namely, this invention aims at offering the composite-powder object and the charge of makeup which have the ultraviolet-rays defense effect, and activity was suppressed, and were excellent in stability and safety, and were excellent also in the feel at the time of use.

[0004]

[Means for Solving the Problem] As a result of inquiring wholeheartedly in view of the above-mentioned actual condition, this invention people are heating zinc-oxide powder at the temperature of 600-1700 degrees C, and found out that the activity of a zinc oxide could be suppressed. And when the composite-powder object composite-ized with inorganic powder based on these activity suppression type zinc-oxide fine particles was blended with the charge of makeup, it found out that the stability of a product, safety, and the charge of makeup that was excellent with the feel at the time of use were obtained. That is, this invention relates to the composite-powder object characterized by composite-izing the activity suppression type zinc-oxide fine particles which heat-treated zinc-oxide powder at the temperature of 600-1700 degrees C with inorganic powder, and being obtained. Moreover, this invention relates to the charge of makeup characterized by containing this composite-powder object.

[0005]

[Embodiments of the Invention] Hereafter, it explains in full detail about the composition of this invention. As for the zinc-oxide powder used by this invention, it is desirable that it is in the range the first [ an average of ] particle diameter of whose is 5nm - 100 micrometers, and what is in the range which is 5-100nm especially is desirable. Since the particle diameter is too small, when it is difficult to obtain industrially and it exceeds 100 micrometers in less than 5nm, since the particle is large, in the activity itself, for a low reason, compared with a particle zinc oxide, the activity itself has few problems and bird clappers. Moreover, while in the case of the particle zinc oxide which is in the range whose first [ an average of ] particle diameter is 5-100nm especially the activity of the fine particles itself is strong and there is the feature from which the effect of activity fall processing of this invention is acquired most strongly, especially since it is easy to perform composite-ization with inorganic powder, it is desirable. Methods, such as a method using laser diffraction and dispersion as a measuring method of a particle diameter, dynamic light scattering, and electron microscope observation, are mentioned.

[0006] As a configuration of the zinc-oxide powder used by this invention, although configurations, such as the shape of the shape of a globular shape, a tabular, and a spindle, an unfixed configuration, a cylinder, and a scale, are mentioned, in order that there

may be no direct relation to suppression of activity, it is not limited, for example. Moreover, it is not limited by the reason with the same said of particle size distribution.

[0007] In this invention, a 600-1700-degree C temperature requirement and the activity suppression type zinc-oxide fine particles preferably heat-treated in the 800-1200-degree C temperature requirement are used for zinc-oxide powder. At less than 600 degrees C, if suppression of activity is inadequate and it exceeds 1700 degrees C, a zinc oxide sublimates, and since it is poisonous, this gas has a not desirable problem to environment or a human body, and it is necessary to heat-treat it by the above-mentioned temperature requirement.

[0008] As heating time, 0.1 - 48 hours is 1 - 12 hours desirable still more preferably. Activity suppressing becomes inadequate in less than 0.1 hours, and a production cost may become high if it exceeds 48 hours.

[0009] Although the method of heating directly the zinc-oxide powder put into containers, such as a crucible, as the heating method using gas or the electrical and electric equipment, the method using an electromagnetic wave, etc. are mentioned, it will not be limited especially if it is in the above-mentioned temperature conditions.

[0010] It is possible to carry out surface treatment of the obtained activity suppression type zinc-oxide powder, and to use it in this invention, by the method that siliconization, silicone resin processing, silanizing, alkyl silanizing, titanium coupling-agent processing, fluorine compound processing, oily medicine processing, metallic-soap processing, waxing, amino acid processing, N-acylation lysine processing, metallic-oxide processing, plasma treatment, \*\* agent processing, etc. are conventionally better known still. In addition, as an example of fluorine compound processing, a perfluoro alkyl phosphate, a perfluoro polyether, a fluorine content silicon compound, a perfluoro alkyl silane, etc. are mentioned.

[0011] The object which is in the range whose particle size is 0.05-100 micrometers as inorganic powder used by this invention is desirable. A feel may not be desirable, when composite-izing with zinc-oxide fine particles was difficult, and exceeded 100 micrometers in less than 0.05 micrometers and it blends with the charge of makeup. As a configuration of inorganic powder, especially although configurations, such as the shape of the shape of a globular shape, a tabular, and a spindle, an unfixed configuration, a cylinder, and a scale, are mentioned, it is not limited.

[0012] As an example of the above-mentioned inorganic powder used by this invention, metal salts, such as pearl pigments, such as extenders, such as white pigments, such as colored pigments, such as an apatite, hydronalium SHIKIAPA tightness, a yellow iron oxide, a red iron oxide, a black iron oxide, a chrome oxide, ultramarine blue, and Berlin blue, titanium oxide, and a cerium oxide, talc, a mica, a sericite, and a kaolin, and mica titanium, a barium sulfate, a calcium carbonate, a magnesium carbonate, aluminum silicate, and a magnesium silicate, a silica, an alumina,

[0013] It is possible to carry out surface treatment of these inorganic powder, and to use it like the above, in this invention by the method that silicon oil processing, silicone resin processing, silanizing, alkyl silanizing, titanium coupling-agent processing, fluorine compound processing, oily medicine processing, metallic-soap processing, waxing, amino acid processing, N-acylation lysine processing, metallic-oxide processing, plasma treatment, \*\* agent processing, etc. are conventionally better known still. In addition, as an example of fluorine compound processing, a perfluoro alkyl phosphate, a perfluoro polyether, a fluorine content silicon compound, a perfluoro alkyl silane, etc. are mentioned.

[0014] Although this invention relates to the composite-powder object which was excellent in the feel at the time of use of the charge of makeup by composite-izing the above-mentioned activity suppression type zinc-oxide fine particles with inorganic powder With composite-ization said by invention, \*\* wet blending and the drying method, a spray dryer, etc. are used. fine particles Adhesion processing is carried out [ a coagulation treatment or ], \*\* Say combining fine particles chemically using producing composite-ization in mechanochemical using a ball mill etc., \*\* coupling agent, an adhesive resin, etc. The configuration of composite-ized fine particles is not limited in order to change with composite-ized arts, particle size, etc. to be used a lot.

[0015] As a ratio of composite-izing of the activity suppression type zinc-oxide fine particles of this invention, and inorganic powder, it is a weight ratio, and it is desirable that it is the range of 1:99-99:1. In any ranges other than this, the effect of composite-izing is weak and functions, such as a feel, may fully be unable to demonstrate.

[0016] It is desirable in order that blending one or more sorts of components chosen from an ultraviolet-rays defense agent (an inorganic system and an organic system are included), an anti-oxidant, and a radical elimination agent with the above-mentioned composite-powder object in this invention may attain the purpose of this invention.

[0017] The ultraviolet-rays defense agent of the organic system which has an absorption property corresponding to UV-A (wavelength of 400-320nm) and UV-B (320nm - 280nm) as an ultraviolet-rays defense agent, and an inorganic system can be used. As an example of an organic system ultraviolet-rays defense agent, for example Para methoxycinnamic acid 2-ethylhexyl, PARAJI methylamino benzoic-acid 2-ethylhexyl, 2-hydroxy-4-methoxybenzophenone, 2-hydroxy-4-methoxybenzophenone-5-sulfuric-acid, 2, and 2'-dihydroxy-4-methoxybenzophenone, p-methoxy hydro cinnamic-acid diethanolamine salt, a p aminobenzoic acid (henceforth) Salicylic-acid gay menthyl, methyl-O-amino benzoate which are abbreviated to PABA, The 2-ethylhexyl-2-cyano -3, 3-diphenyl acrylate, The octyl dimethyl PABA, a methoxycinnamic acid octyl, a salicylic-acid octyl, A 2-phenyl-benzimidazole-5-sulfuric acid, a salicylic-acid triethanolamine, 3-(4-methyl benzylidene) camphor, 2, 4-dihydroxybenzophenone, 2, 2', 4, a 4'-tetrapod hydroxy benzophenone, 2 and 2'-dihydroxy -4, a 4'-dimethoxy benzophenone, 2-hydroxy-4-N-octoxybenzophenone, 4-isopropyl dibenzoylmethane, Butyl methoxydibenzoylmethane, 4-(3, 4-dimethoxy phenyl methylene)-2, and 5-dioxo-1-imidazolidine propionic-acid-2-ethylhexyl etc. is mentioned. Furthermore, the compound which derivatized by the hydrocarbon system macromolecule, the silicone system macromolecule, the silane, etc. based on these frames is also usable.

[0018] the titanium dioxide which is in the range whose first [ an average of ] particle diameter is 5-300nm as an example of an inorganic system ultraviolet-rays defense agent -- low -- fine particles, such as degree titanium oxide, a cerium oxide, cobalt oxide, a cerium-oxide zirconium, and iron oxides, are mentioned Moreover, as a configuration of these fine particles, especially although the shape of the shape of a globular shape and a spindle, a cylinder, and an unfixed type, a tabular, etc. are mentioned, it is not limited. Moreover, you may perform surface treatment for these fine particles by the well-known method further conventionally. As an example of surface treatment, the same well-known surface treatment as the above can be mentioned conventionally.

[0019] As an example of an anti-oxidant and a radical elimination agent, the matter with conventionally well-known tocopherols, SOD (superoxide dace smooth TAZE), phenols, terpenes, butylhydroxytoluene, vitamin C, vegetable extraction components (a tea extract, a rice bran oil, a \*\*\*\* extract, a \*\*\*\* extract, persimmon extract, etc.), catechins, chlorophyll, porphyrins, a microorganism production component, etc. is mentioned, for example.

[0020] At the charge of makeup of this invention, components, such as the fine particles (the pigment, the coloring matter, resin) and the oily medicine which are usually used for the charge of makeup other than the above-mentioned component, a fluorine compound, a resin, a surfactant, a \*\* agent, antiseptics, perfume, a moisturizer, a physiological activity component, salts, a solvent, a chelating agent, a neutralizer, pH regulator, and ceramides, can be blended simultaneously.

[0021] As fine particles which can be suitably blended by this invention into [ other than the aforementioned composite-powder object which is an indispensable component ] the charge of makeup For example, coloring matter, such as red No. 104, red No. 201, yellow No. 4, blue No. 1, and black No. 401, Lake coloring matter, such as a yellow No. 4 aluminum lake and a yellow No. 203 Ba lake, nylon powder, Silk powder, urethane powder, Teflon powder, silicone powder, Macromolecules, such as cellulose powder, a yellow iron oxide, a red iron oxide, a black iron oxide, Colored pigments, such as a chrome oxide, carbon black, ultramarine blue, and Berlin blue, a zinc oxide, White pigments, such as titanium oxide and a cerium oxide, talc, a mica, a sericite, Inorganic fine particles, such as metal salts, such as pearl pigments, such as extenders, such as a kaolin, and mica titanium, a barium sulfate, a calcium carbonate, a magnesium carbonate, aluminum silicate, and a magnesium silicate, a silica, and an alumina, a bentonite, a smectite, etc. are mentioned. Although there is especially no limit in the configuration of these fine particles, a size, and surface treatment, as surface treatment, siliconization, fluorine compound processing, N-acylation lysine processing, \*\* agent processing, etc. are desirable.

[0022] As an example of an oily medicine, cetyl alcohol, isostearyl alcohol, Higher alcohol, such as lauryl alcohol, a hexadecyl alcohol, and an octyl dodecanol, Fatty acids, such as isostearic acid, a undecylenic acid, and oleic acid, a glycerol, Polyhydric alcohol, such as a sorbitol, ethylene glycol, a propylene glycol, and a polyethylene glycol, A myristic-acid millimeter still, a lauric-acid hexyl, an oleic acid desyl, A myristic-acid isopropyl, a dimethyl octanoic-acid hexyl desyl, the glyceryl monostearate, Ester, such as a diethyl phthalate, monostearin acid ethylene glycol, and an oxy-stearin acid octyl Fats and oils, such as lows, such as hydrocarbons, such as a liquid paraffin, vaseline, and squalane, lanolin, reduction lanolin, and a cull navarho, a mink oil, cacao butter, palm oil, palm kernel oil, camellia oil, sesame oil, castor oil, and olive oil, ethylene alpha-olefin co-oligomer, etc. are mentioned.

[0023] As an example of the oily medicine of another form, for example Moreover, dimethylpolysiloxane, Methil hydrogen polysiloxane, a methylphenyl polysiloxane, Polyether denaturation organopolysiloxane, a fluoro alkyl polyoxyalkylene covariance polysiloxane, Alkyl denaturation organopolysiloxane, end denaturation organopolysiloxane, Fluorine denaturation organopolysiloxane, an AMOJIMECHI cone, amino denaturation organopolysiloxane, Sugar denaturation silicone, glyceryl denaturation silicone, silicone gel, acrylic silicone, Fluorine compounds, such as silicon compound [ , such as a trimethylsiloxo silicic acid and silicone RTV rubber, ], perfluoro polyether, and pitch fluoride, a fluorocarbon, fluoro alcohol, and fluorine-ized silicone resin, are mentioned.

[0024] As a surfactant, an anion type surfactant, a cation type surfactant, a Nonion type surfactant, and a betaine type surfactant can be used, for example.

[0025] As a solvent which can be used for the charge of makeup of this invention, a purified water, ethanol, a light flow isoparaffin, a lower alcohol, ether, LPG, a fluorocarbon, N-methyl pyrrolidone, fluoro alcohol, a perfluoro polyether, a chlorofluorocarbon-replacing material, volatile silicone, etc. are mentioned.

[0026] As a charge of makeup of this invention, charges of basic makeup, such as charges of makeup makeup, such as foundation, a face powder, eye shadow, an eyeliner, a teak, a lip stick, and a nail color, a milky lotion, a cream, a lotion, a sun block, a suntan agent, an aftershave lotion, a pre-shave lotion, a charge of a pack, a charge of cleansing cream, and a charge of washing their face, hair coloring, body powder, a deodorant, soap, a body shampoo, a bathing agent, an

[0027] Moreover, as loadings of the composite-powder object in the charge of makeup of this invention, per charge of makeup 100 weight section and the 0.1 - 100 weight section are 0.5 - 60 weight sections desirable still more preferably.

[0028]

[Example] Hereafter, an example and the example of comparison explain this invention concretely. In addition, the evaluation examination of various activity, the organic-functions characterization examination, and the ultraviolet-rays defense effect examination were performed by the following method.

[0029] (1) According to the method (color material, 55 volumes, No. 12, 864-871 pages, 1982) of solid-acid activity evaluation examination Fukui and others, the resultant (a propylene, acetone) of the shift reaction of isopropyl alcohol was analyzed by the gas chromatograph using the pulse reactor, and activity was evaluated. When solid-acid activity of the example of comparison was set to 100 and solid-acid activity of an example was set to A, in accordance with the criteria shown in Table 1, it evaluated

from the value of A.

[0030]

[Table 1]

Aの値	評 価
0～25	○
26～50	△
51以上	×

[0031] (2) Activity evaluation examination (existence of transformation)

The composite-powder object of an example and the example of comparison was mixed at 5% of the weight of a rate in the white vaseline, and the appearance view when leaving it for ten days at 60 degrees C, and a stinking shell and the existence of transformation were judged.

[0032] (3) Using ten organic-functions characterization examination special panelists, the charge of makeup of a prototype was applied to the skin, and the organic-functions property was evaluated. a feel -- excelling -- \*\* -- +five points and a feel -- \*\*\*\* -- zero point -- carrying out -- the meantime -- a total of four stages -- evaluating -- the sum total of all the members' mark -- with, it considered as the evaluation result Therefore, it is shown that evaluation is so high that mark are high.

[0033] (4) Using the ten ultraviolet-rays defense effect examination special panelists, the charge of makeup of a prototype was applied to the skin, and the ultraviolet-rays defense effect was evaluated. In the daytime, (one day), tennis was performed outdoors and it evaluated in accordance with the error criterion shown in Table 2 from the state of suntan (instant melanism). the sum total of all panelists' mark -- with, it considered as the evaluation result Therefore, it is shown that the ultraviolet-rays defense effect is so high that mark are high.

[0034]

[Table 2]

状 態	点 数
即時黒化が全く認められない	+ 5 点
やや即時黒化が認められる	+ 2 点
黒化が認められる	0 点

[0035] The reforming particle zinc oxide with which the example 1 first [ an average of ] particle diameter covered what heated the particle zinc oxide which is 16nm at 800 degrees C for 4 hours 3% of the weight using the N-lauroyl-L-lysine was obtained. Next, after mixing a reforming particle zinc oxide, the sericite of 11 micrometers of first [ an average of ] particle diameters, and fluoridation silicone resin in the weight ratio of 15:83:2 in an isopropyl alcohol solvent, heating removal of the solvent was carried out under reduced pressure. After carrying out stoving of the obtained powder at 110 degrees C for 3 hours, it ground using the mixer and the composite-powder object made into the purpose was acquired. The acquired composite-powder object had taken the form where the particle zinc oxide covered the sericite front face uniformly.

[0036] The example 2 first [ an average of ] particle diameter heated the zinc oxide which is 16 micrometers at 1100 degrees C for 6 hours, and obtained reforming zinc-oxide fine particles. Next, after rough-mixing reforming zinc-oxide fine particles and the silica whose first [ an average of ] particle diameter is 8 micrometers in the weight ratio of 50:50 using a mixer, composite-ization was carried out in mechanochemical using on-GUMIRU (Hosokawa Micron CORP. make), and the composite-powder object made into the purpose was acquired. The acquired composite-powder object had taken the configuration in which zinc-oxide fine particles are wearing the silica front face.

[0037] The example 3 first [ an average of ] particle diameter heated the tabular zinc oxide which is 12 micrometers at 900 degrees C for 6 hours, and obtained reforming tabular zinc-oxide fine particles. next, underwater -- reforming tabular zinc-oxide fine particles, the silica of 8nm of first [ an average of ] particle diameters, and the alumina of 30nm of first [ an average of ] particle diameters -- the weight of 90:5:5 -- a ratio -- the fine-particles weight ratio after mixing -- after performing and carrying out stoving of the covering processing by 5% of the weight of the deoxyribonucleic acid (DNA), the composite-powder object which pulverizes with an atomizer and is made into the purpose was acquired The acquired composite-powder object had taken the configuration in which the silica and the alumina are wearing the zinc-oxide fine-particles front face mostly.

[0038] The particle zinc oxide which is not heated [ same ] as having used in the example 1 instead of the reforming particle zinc oxide of example of comparison 1 example 1 was used, and also [ all / and also ] the composite-powder object was acquired like

the example 1.

[0039] The zinc oxide which is not heated [ same ] as having used in the example 2 instead of the reforming zinc oxide of example of comparison 2 example 2 was used, and also [ all / and also ] the composite-powder object was acquired like the example 2.

[0040] The tabular zinc oxide which is not heated [ same ] as having used in the example 3 instead of the reforming tabular zinc oxide of example of comparison 3 example 3 was used, and also [ all / and also ] the composite-powder object was acquired like the example 3.

[0041] What heated the particle zinc oxide which is 16nm at 800 degrees C for 4 hours was covered 3% of the weight using the N-lauroyl-L-lysine, the reforming particle zinc oxide was obtained, and the example of comparison 4 first [ an average of ] particle diameter mixed this and the sericite of 11 micrometers of mean particle diameters using the mixer in the weight ratio of 17:83, and acquired the mere mixed-powder object.

[0042] Foundation was obtained according to prescription shown in Table 3 of the example 4 following. In addition, as a fluoridization pigment, the 5 % of the weight processing article of perfluoro alkyl phosphates was used. Furthermore, as a silicone elastomer / a dimethylpolysiloxane kneading object, silicone elastomer concentration used what is 40 % of the weight. The unit of loadings is weight %.

[0043]

[Table 3]

配 合 成 分	配合量
成分A	
複合粉体 (実施例 1)	1 5 . 5
複合粉体 (実施例 2)	1
複合粉体 (実施例 3)	1 0
フッ素処理アルミナシリカ処理微粒子酸化チタン (平均一次粒子径 3 5 nm)	5
フッ素処理酸化鉄	4 . 5
フッ素処理酸化チタン (平均一次粒子径 0 . 2 3 μm)	8
フッ素処理タルク	1 9
フッ素処理板状硫酸バリウム	2 0
成分B	
シリコーンエラストマー／ジメチルポリシロキサン混練物	1 0
パーフルオロアルキル・ポリオキシアルキレン共変性 ポリシロキサン (HLB=1 . 1)	3
有機系紫外線防御剤 (ジボダン社製パラソルMCX)	3
パーフルオロポリエーテル	1
防腐剤, 抗酸化剤	適量

[0044] Components A and B were mixed using the mixer, respectively. The mixed component B was dropped slowly, agitating the mixed component A. Furthermore, after using the mixer and mixing, it ground using the atomizer, the \*\* type was carried out to \*\*\*\* using metal mold, and the product of foundation was obtained.

[0045] Instead of the composite-powder object (example 2), the composite-powder object of the example 1 of comparison was used instead of the composite-powder object (example 1) in the example of comparison 5 example 4, the composite-powder object of the example 2 of comparison was used, instead of the composite-powder object (example 3), the composite-powder object of the example 3 of comparison was used, and also [ all / and also ] the product of foundation was obtained like the example 4.

[0046] The mixed-powder object of the example 4 of comparison was used instead of the composite-powder object (examples 1-3) in the example of comparison 6 example 4, and also [ all / and also ] the product of foundation was obtained like the example 4.

[0047] The evaluation result of the solid-acid activity of a composite-powder object and activity (existence of transformation) produced in the example and the example of comparison is shown in following Table 4 and 5.

[0048]

[Table 4]

	比較対象	固体酸活性
実施例 1	比較例 1	○
実施例 2	比較例 2	○
実施例 3	比較例 3	○

[0049]

[Table 5]

	活性（変質の有無）
実施例 1	問題なし
実施例 2	問題なし
実施例 3	問題なし
比較例 1	変臭発生
比較例 2	変臭発生
比較例 3	やや変臭発生
比較例 4	問題なし

[0050] As for examples 1-3, the result of Table 4 showed that catalytic activity was falling sharply as compared with the examples 1-3 of comparison. Although Table 5 was as a result of accelerated aging, in the examples 1-3, it turns out that it passes and the possibility of generating of the stench in the time is falling sharply to a product passing through the examples 1-3 of comparison which blended the zinc-oxide fine particles which have not suppressed activity, and generating a stench in the time.

[0051] The evaluation result of the foundation produced in an example 4 and the examples 5-6 of comparison is shown in the following table 6.

[0052]

[Table 6]

	官能特性	紫外線防御効果
実施例 4	4 6	5 0
比較例 5	4 5	5 0
比較例 6	3 1	5 0

[0053] It did not generate but, as for phenomena, such as condensation and weld, Table 6 showed having the same conventional organic-functions property as a product and the conventional ultraviolet-rays defense effect, even when the composite-powder object of activity suppression type reforming zinc-oxide fine particles heated at the elevated temperature of an example 4 was used. And when a product was used continuously, the influence on the skin was not accepted. Moreover, the example 4 had the performance excellent also in the sebum adsorption property of the zinc-oxide fine-particles origin. Furthermore, when composite-ization is not performed but the mixture of reforming zinc-oxide fine particles and inorganic powder is simply used from the result of the example 6 of comparison, it turns out that an organic-functions property gets worse compared with the case where composite-ization is performed.

[0054]

[Effect of the Invention] The charge of makeup of excel [ excel in stability and safety more and / in the feel at the time of use and the ultraviolet-rays defense effect ] of this invention in which the activity of zinc-oxide powder is suppressed and the composite-powder object of this invention contains this composite-powder object is clear from the above thing.

[Translation done.]



**\* NOTICES \***

**Japan Patent Office is not responsible for any damages caused by the use of this translation.**

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. \*\*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

---

**TECHNICAL FIELD**

---

[The technical field to which invention belongs] this invention relates to the charge of makeup containing the composite-powder object which composite-ized the zinc-oxide fine particles which suppressed activity by heating zinc-oxide powder with inorganic powder, and these fine particles. Furthermore, it is heating zinc-oxide powder at an elevated temperature in detail, and is containing the composite-powder object acquired by composite-izing the zinc-oxide fine particles by which various activity's, such as the photocatalyst activity's of a zinc oxide and solid-acid activity's, was suppressed with inorganic powder, and the stability of a product, safety, the ultraviolet-rays defense effect, and the charge of makeup excellent in the feel at the time of use are offered.

---

[Translation done.]

**\* NOTICES \***

**Japan Patent Office is not responsible for any damages caused by the use of this translation.**

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. \*\*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

---

**PRIOR ART**

---

[Description of the Prior Art] Zinc-oxide powder is excellent in the ultraviolet-rays defense effect, and has sterilizing properties, there is the feature which was [ be / little whiteness / optically ] excellent, and even when it composite-izes with other fine particles, the feature which was excellent in the zinc-oxide origin can be acquired. Moreover, zinc-oxide powder is a material desirable for it being comparatively soft and acquiring a composite-powder object in mechanochemical compared with titanium oxide etc. For example, the technology which composite-izes the zinc-oxide powder siliconized by JP,8-245343,A etc. for the purpose of improvement in sebum control nature and a feeling of use by fine particles is proposed.

---

[Translation done.]